B A C K H O E S

410D 510D









# Backhoes that take a workout and get the work done

Trenching, craning, or just plain digging, these heavy-duty machines are designed for big backhoe production in any soil condition. Step into the roomy cab, turn the seat around to the backhoe operating position and prepare to do some digging.

Start by setting the stabilizers. The controls are conveniently located to your left. Both controls can be easily activated with one hand.

Grab hold of the backhoe controls and notice that the valve body is mounted low to give you a clear view of the work at hand.

The low-effort controls on the 410D and 510D let you work at peak efficiency for long hours and still give you the feel and control to make precise maneuvers with confidence.

These rugged machines deliver the fast cycle times you need for big jobs.

For situations where extra digging depth or reach is needed, consider an extendable dipperstick. John Deere's design moves less weight out as it is extended. This enhances the machine's ability to handle heavy loads.

The extendable dipperstick uses boron steel wear strips on both the inner and outer boxes. Having all sliding contact between these replaceable surfaces eliminates wear on costly structural components.

It's not just large digging jobs that these backhoes are good at. The 410D and 510D have a 9 ft. 10 in. (3.00 m) wide stabilizer stance and a 14-degree rearward angle. This lets you tackle any tough craning job.

John Deere's exclusive bucket linkage design allows you to set up your backhoe in two different ways.

To gain maximum power and

peak production in adverse conditions, use the "power dig" position. You have 160 degrees of bucket rotation.

For better material retention, try the "truck loading" position. Then you'll have 180 degrees of bucket rotation.

This linkage also lets you use Case, Ford or buckets from older John Deere backhoes. This is another John Deere exclusive feature.

John Deere backhoe buckets endure whatever conditions you dig in. Now there's a bucket for your every need. Backhoe buckets are available in standard, heavy-duty or extraheavy-duty. Strong features like thick, wide, full-length side cutters and a 1 in. (25 mm) cutting edge for maximum strength and rigidity make these the most durable buckets on the market.

Buckets are also wider at the front opening than at the back. This reduces bucket drag and provides better dumping.

All John Deere buckets come

complete with industry exclusive Fanggs™ bucket teeth. Unique plowshare design on Fanggs teeth requires up to 23 percent less digging effort, provides up to 19 percent longer life.

You can count on big backhoe production with the John Deere 410D and 510D Backhoe Loaders. Fast cycle times and low-effort operator controls give you peak backhoe performance on any jobsite.

### **BACKHOE PERFORMANCE**

	Digging force, bucket cylinder power dig	Digging force, crowd cylinder	Bucket positions	Lifting capacity, maximum, boom at 65 deg.
510D:			Art Transfer of the	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Long Dipperstick		7600 lb. (33.8 kN)	8 or 17 deg. rollback	6000 lb. (2700 kg)
Extendable Dipperstick				
		8100 lb. (36.0 kN)	8 or 18 deg. rollback	6200 lb. (2790 kg)
Extended		5300 lb, (23.6 kN)	12 or 21 deg, rollback	3400 lb. (1530 kg)
410D:				
Long Dipperstick		6300 lb. (28 kN)	9 or 18 deg. rollback	4400 lb. (1980 kg)
Extendable Dipperstick	k			
Retracted		6800 lb. (30,3 kN)	8 or 17 deg. rollback	4600 lb. (2070 kg)
Extended		4600 lb. (20.5 kN)	12 or 22 deg. rollback	2900 lb. (1310 kg)

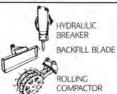
#### **BACKHOE BUCKETS**

510D an	d 410	D:		Standa	rd-duty	/				He	avy-du	ty		Extra-l	neavy-c	luty
Width	In.	12	16	18	24	30	36	36	12	18	24	24	30	18	24	30
vvidui	(mm)	(305)	(406)	(457)	(610)	(762)	(914)	(914)	(305)	(457)	(610)	(610)	(762)	(457)	(610)	(762)
Capacity	Cu. Ft.	2.5	3.6	5.1	7.5	10.0	9.9	14.5	2.5	5.1	7.5	8.8	10.0	5.1	7.5	10.0
Capacity	(m3)	(0.07)	(0.10)	(0.14)	(0.21)	(0.28)	(0.28)	(0.41)	(0.07)	(0.14)	(0.21)	(0.25)	(0.28)	(0.14)	(0.21)	(0.28)
Weight	Lb.	244	268	322	370	410	430	556	258	334	396	476	444	362	424	474
vveigne	(kg)	(1111)	[122]	(146)	(168)	(186)	(195)	(252)	(117)	(151)	(180)	(216)	(201)	(164)	(192)	(215)

#### BACKHOE ATTACHMENTS









PAVEMENT REMOVAL BUCKET AUGER

JAW BUCKET



Very accessible lever activates the backhoe boom lock.



Fanggs bucket teeth give better bucket fill, penetrate with less resistance.



Reversible stabilizer pads flip from a rubber street side to a cleated side for operation on soft surfaces.





### **Excellent weight distribution and high** breakout force increase your loader production

Increase your loader production and your profits. The 410D and 510D Backhoe Loaders feature a fully synchronized transmission and vertical backhoe transport position that make loader work quick and smooth.

Visibility is superior. The operator is positioned high. And the loader is designed for optimum visibility as the photos on these pages confirm.

Easy loading. The singlelever control responds with little operator effort. There's a float position, automatic-return-todig, hydraulic self-leveling and bucket level indicator.

The best buckets. Loader buckets feature heat-treated cutting edges, built-in chain hooks and wide skid shoes.

Mechanical-front-wheel

your 410D and 510D into more productive loaders in any application. Just flip a switch on the control console to activate it. A green light lets you know it's engaged. The rugged, industrial front

drive is an option that turns

axle, with a unique offset differential, provides excellent ground clearance. There is no maneuverability penalty when you choose front-wheel drive. The steering specifications on this page clearly prove it.

Automatic, electric parking brake. When you turn the ignition key to off, the parking brake engages automatically. There is a switch on the control console that lets you disengage the brake when you start the engine and it lets you control



Front-wheel drive engages on-the-go. Features a limited slip differential.



Electric reverser control lets you

A single lever controls loader functions. Button disengages clutch.



Buckets are predrilled for bolt-on cutting edges or teeth.



Vertical backhoe improves over-the-road stability.

the brake whenever the engine is running.

Hydrostatic power steering lets you effortlessly maneuver full loads in soft footing.

You'll get big loader performance in adverse conditions with the 410D and 510D. These smooth handling, quick moving backhoe loaders are a profitable addition to any jobsite.

### LOADER PERFORMANCE

	510D*	410D**
Breakout force	9500 lb. (42.3 kN)	9700 lb. (43.2 kN)
Lifting capacity, full height		6600 lb. (2990 kg)
Raising time to full height	4.4 sec.	4.5 sec.
Bucket dump time		1.0 sec.
Bucket lowering time (power down		3.0 sec.
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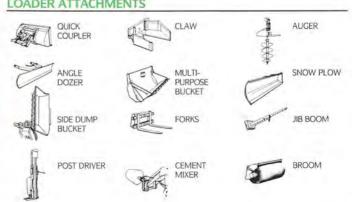
"Loader performance specifications based on the usage of a 1.5 cu, yd. (1.5 m') bucket.
"Loader performance specifications based on the usage of a 1.3 cu, yd. (1.0 m') bucket.

#### LOADER BUCKETS

	Width		Capacit	y	Weigh	t
510D Loader:	In	mm	Cu. Ft.	m³	Lb.	kg
General	92	2340	1.3	1.00	796	361
purpose –	92	2340	1.5	1.15	1080	490
Long lip	89	2270	1.25	0.96	750	340
Multipurpose	92	2340	1.25	0.96	1560	708
410D Loader:						
General	92	2340	1.0	0.76	760	345
purpose	92	2340	1.3	1.00	796	361
Long lip	89	2270	1.25	0.96	750	340
Multipurpose	92	2340	1,25	0.96	1560	708

Non-powered axle	510D	410D
Curb turning radius with brakes		11 ft. 8 in. (3.55 m) 13 ft. 3 in. (4.04 m)
Bucket clearance circle with brakes without brakes Steering wheel turns, stop to stop	37 ft. 3 in. (11.34 m)	31 ft. 8 in. (9.64 m) 34 ft. 9 in. (10.60 m) 2.2 to 2.9
Mechanical-front-wheel drive	2.2 10 2.3	2.2 10 2.5
Curb turning radius with brakes without brakes		11 ft. 5 in. (3.49 m) 13 ft. 6 in. (4.11 m)
Bucket clearance circle with brakes without brakes	35 ft. 8 in. (10.88 m) 2.5	29 ft. 7 in. (9.02 m) 33 ft. 8 in. (10.26 m) 2.5 22 degrees

### LOADER ATTACHMENTS





### An operator's station that won't cramp your operating style or your legs

Put your foot on the conveniently placed, self-cleaning step, grab the nearby handholds and walk onto the large platform. Move into the spacious cab and make vourself comfortable. Do it from either side - there are now two doors. Easy entrance and exit are just the beginning of the features you'll like about the large operator's station.

### There's lots of room.

Controls and gauges are well placed. The comfortable seat, with optional flip-up armrests, is fully adjustable. It can be ordered in vinyl or fabric covering. A suspension base is also available. And a seat belt retractor keeps this important safety feature within easy reach.

Order your backhoe with a cab and you'll be convinced that the engineers designed this "hoe" with comfort as a number one priority. Huge doors open on either side. There is glass from top to bottom, allowing an excellent view to the front.

Rear glass – with the bottom half sliding down in a low storage position and the top half storing overhead - opens to provide an unobstructed view to the rear.

Best ventilation. Fifty-five percent of the total glass area can be opened while the machine is operating. Side windows open to the front or rear. The entire back of the cab also



opens. And these big machines can be operated with the left front door open without fear of damage. The door opens to the front and is secured within the width of the vehicle by a sturdy gas cylinder.

Cab equipped 410D and 510D Backhoes come with a

40,000 Btu/hr. (11.7 kW) heater/pressurizer. Both feature fresh air intake and heat distribution through automotive-type ducting and vents strategically located throughout the cab.

Air conditioning is also available as an option and can be factory or field installed.

Quietest cab in the industry. Whether your machines are equipped with a ROPS canopy or a cab, you will be amazed at the guietness. A thick, padded rubber floormat, headliner and underhood muffler with vertical exhaust make these machines a

pleasure to operate.



Wipers clear a wide swath front and rear. Windshield washer is optional.



The huge right side door opens within the machine width or wider if desired. Well-placed controls assure unhampered access.



The left door opens within the machine's width, can be left open while operating without fear of damage from passing traffic, tree limbs.



Suspended pedals are centered. Brakes (center) can be locked together or operated individually. Differential lock is on the left, accelerator to the right.



### A drivetrain that's designed for dependability and built for big production

From the reliable John Deere engine to the maintenance-free brakes, the drivetrain in the 410D or 510D is built to last. You can count on problemfree, powerful performance year after year.

John Deere diesel engines provide the power. These field proven, fuel efficient power plants are also engineered to stand up to demanding construction applications year in and year out.

They use replaceable wet-type cylinder liners that are centrifugally cast to assure uniform thickness. This provides fast, even heat dissipation which prevents cylinder distortion, premature ring wear and oil breakdown, all of which can lead to costly engine failures.

Increased durability is added to all John Deere engines with features such as high-strength alloy heads with valve rotators and replaceable seats, heavyduty crankshafts that are statically and dynamically balanced for smooth operation, and cast

Transmission shift knob has a clutch disconnect button for convenience.



Parking brake control is an electric switch mounted on the control console.

aluminum pistons that are light in weight to reduce connecting rod bearing loads and provide good heat transfer.

Bottoms of pistons receive a constant spray of cooled, filtered oil to provide lubrication to the piston pin and cool the combustion chamber allowing fuel to burn more efficiently.

The high-torque-rise characteristics of John Deere diesel engines gives them tremendous lugging ability. This lets operators perform at peak proficiency without downshifting.

A proven torque converter and reverser is tied to a responsive, fully synchronized John Deere 4-speed collar-shift transmission.

The brakes are the trouble-free wet disk type. They are mounted inboard, sealed in a pressurized oil bath, away from dirt and other contaminants. They're self-adjusting. self-equalizing and require no routine maintenance.

The parking/emergency brake on the 410D and the 510D is a separate system, independent of the service brakes. It uses a mechanical V-groove band located on the differential ring gear. The brake can be applied and released by activating a switch on the control console. Whenever the engine is shut off the brake is automatically engaged, immediately. The added margin of safety this systern provides is obvious.

A mechanical differential lock is standard on the 410D and 510D. It can be engaged on the go, equalizing power to both wheels.

Inboard planetary final drives distribute rear axle loads evenly over three gears, rather than one. The axle is housed in a massive casting and is carried on heavy-duty, lubricated bearings to prolong life. Planetary gears are sealed in an oil bath for cooling and lubrication.

All drivetrain components are mounted in the one-piece unitized mainframe where they are isolated from working shock load stress. Each component can be removed independently of the others to speed repairs and reduce downtime.

From front to rear, John Deere durable drivetrains deliver dependable performance on any jobsite.

#### **ENGINE**

Engine – John Deere 4045D and 4045T	
Rated power @ 2200 rpm 510D	410D
naturally aspirated	75 hp SAE net (56 kW)
turbocharged90 SAE net hp (67 kW	
Cylinders4	6
Displacement	276 cu. in. (4.524 L)
	0.0140 1.0 to 3.0 mellio (4.7 to 7.0 Lib)
Fuel consumption, typical 1.6 to 2.6 gal/hr (6.0 to	
Torque rise at1300 rpm	1350 rpm
with turbocharger25 percent	25 percent
without turbocharger	1300 rpm/25 percent
TransmissionJohn Deere 4-speed ful	
syncronized, collar shift	
Torque converter	11 in. (280 mm)
with 2,23:1 stall ratio	with 2.23;1 stall ratio

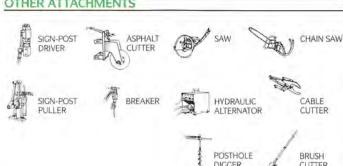
### TRAVEL SPEEDS

		Fo	rward	Reverse		
410D and 510D	Gear	mph	(km/h)	mph	(km/h)	
With 21L-24	1	3.3	5.3	3.9	6.3	
rear tires	2	5.7	9.2	6.6	10.6	
	3	12.1	19.5	14.0	22.5	
	4	22.1	35.6	25.6	41.2	

With mechanical-fr Front	ont-wheel drive Rear	Front	Rear
14.5/75-16.1, 10 PR, F3	21L-24, 10 PR, R4		
11L-16, 12 PR, F3	19.5L-24, 12 PR, R4	11L-16, 12 PR, F3	19.5L-24, 10 PR, R4
11L-16, 12 PR, F3	19.5L-24, 10 PR, R4	11L-15, 10 PR, F3	17.5-24, 10 PR, R4
510D Front	Rear	410D Front	Rear

12-16.5, 8 PR, 12-16.5, 8 PR, 21L-24, 10 PR, R4 21L-24, 10 PR, R4 14-17.5, 8 PR 18.4L-28, 12 PR, R4 14-17.5.8 PR 18.4-28, 12 PR, R4

### OTHER ATTACHMENTS



# Backhoe servicing as easy as 1, 2, 3...



It's 7:00 in the morning and you're still working on your first cup of coffee. You would rather start moving dirt than take an hour to service your backhoe. The John Deere engineers realize this, and that's why they've made the 410D and 510D quick and easy to service. You can service your backhoe in just a matter of a few minutes.

Daily checks can be safely made, through a single door, with the loader bucket on the ground. This door, located at the front of the hood, provides access to the engine oil dipstick, of fill, radiator and air filter.

Other less frequent checks can be made through two other doors also located on the right side of the backhoe. The windshield wiper fluid level check is made through a door near the top of the loader mast. Reverser and transaxle dipsticks are located through a door below the loader mast. All fluid checks can be safely made while standing on the ground.

Lubrication points are easily accessible to assure that this important task is accomplished regularly. Remote, centralized grease banks are used where access to lube points is difficult.

**Periodic service**, the work that needs to be done every 50, 100, or 250 hours can be time consuming. But John Deere makes it guick and easy.

Changing hydraulic filters is a good example.

While some owners are struggling with filters hidden in the reservoir or with a clumsy canister filter, the John Deere owner merely spins off the old and spins on the new.

It is the same quick and easy story with fuel filters, air filters and other maintenance chores.

And while others work to adjust mechanical brake linkage,

service air systems and lube brake actuator pivots, the John Deere owner has peace of mind knowing the brakes on his backhoe require no service at all.

In addition, other periodic service is equally quick and simple.

Hood, side shields and grill housing are designed for easy removal to expose the engine for major service work.

Machine design also influences service work that is required due to failures. Here, too, John Deere engineers have done their job. Every 410D and 510D Backhoe is packed full of features that add hours of trou-



ble-free service to the life of every machine.

Hydraulic lines and cylinders, for example, are shielded to reduce damage during operation. Lines run within machine components where possible to provide protection. In other vulnerable areas they're covered by Cordura fabric, the same material used to make bulletproof jackets, to provide needed protection.

A unique swing cylinder design automatically cushions backhoe swing by cutting oil flow in half near the swing limit. This eliminates the service problems associated with mechanical swing rated mechanisms.

There's no-clutch direction reversing, even at full engine rpm. This eliminates wear and tear on clutches and other internal parts that can cause service problems.

John Deere engineers understand that daily service can often become an annoying, time-consuming task. They also know that there are other more interesting and just as important tasks operators would prefer to do. That's why they've done so much to make the 410D and 510D Backhoe Loaders as easy to service as 1, 2, 3.

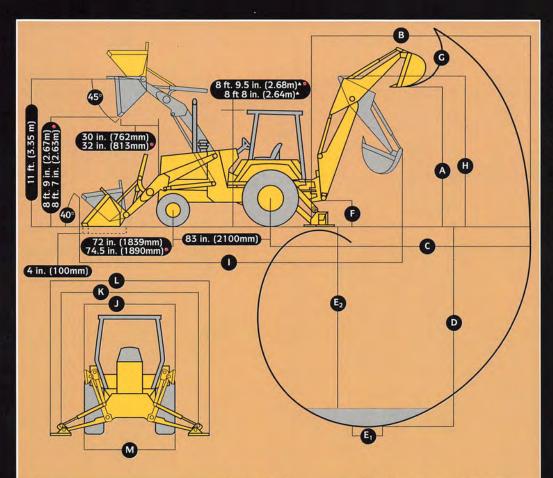
### CAPACITIES

410D and 510D		
Fuel tank		
Engine coolant	17 gt.	(16 L)
Engine oil including filter	9 qt.	(8.5 L)
Torque converter and reverser system	14 gt.	(13 L)
Hydraulic system	21 gal.	(79 L)
Transaxle with MFWD	6 gal.	(23 L)

### **OPERATING WEIGHTS**

4100		510D	
15,600 lt	o. (7075 kg)	16,000 lb.	(7260 kg)
Cab adds500 lb	o. (227 kg)	500 lb.	(227 kg)
Mechanical-front-wheel drive adds275 lb	o. (125 kg)		(111 kg)
Extendable dipperstick with required			
counterweight adds1063 lb	o. (482 kg)	1182 lb.	(536 kg)
Optional front counterweight250 lb	o. (113 kg)	250 lb.	(113 kg)
Backhoe bucket coupler adds200 lt	o. (91 kg)	200 lb.	(91 kg)
See backhoe and loader performance data for bucket	weights		

## **DIMENSIONS**



D. Ch.	Backhoe with	Extendable Dip	perstick
410D	Long Dipperstick	Retracted	Extended
A. Loading height, truck loading position		11 ft. 6 in. (3.51 m)	13 ft. 11 in. (4.24 m)
B. Reach from center of swing mast		17 ft. 9 in. (5.42 m)	21 ft. 5 in. (6.53 m)
C. Reach from center of rear axle		21 ft. 6 in. (6.55 m)	25 ft. 2 in. (7.67 m)
D. Maximum digging depth		14 ft. 8 in. (4.47 m)	18 ft. 5 in. (5.61 m)
E. Digging depth SAE:			100 11 1000
(1) 2-ft. (610 mm) flat bottom		14 ft. 6 in. (4.42 m)	18 ft. 4 in. (5.59 m)
(2) 8-ft. (2440 mm) flat bottom		13 ft. 5 in. (4.09 m)	17 ft. 6 in. (5.34 m)
F. Ground clearance, minimum		12 in. (305 mm)	12 in. (305 mm)
G. Bucket rotation		160 or 180 degrees	160 or 180 degrees
H. Transport height		11 ft. 8 in. (3.56 m)	11 ft. 8 in. (3.56 m)
I. Overall length, transport		23 ft. (7.01 m)	23 ft. (7.01 m)
J. Stabilizer width–transport w/ROPS		7 ft. 8 in. (2.34 m)	7 ft. 8 in. (2.34 m)
K. Stabilizer spread-operating		9 ft. 10 in. (3.00 m)	9 ft. 10 in. (3.00 m)
L. Stabilizer overall width–operating		11 ft. 4 in. (3.45 m)	11 ft. 4 in. (3.45 m)
M. Width over tires	85 in. (2.15 m)	85 in. (2.15 m)	85 in. (2.15 m)
510D			
A. Loading height, truck loading position		12 ft. 4 in. (3.76 m)	15 ft. 3 in. (4.65 m)
B. Reach from center of swing mast		19 ft. 3 in. (5.87 m)	23 ft. 11 in. (7.29 m)
C. Reach from center of rear axle		23 ft. (7.01 m)	27 ft. 8 in. (8.43 m)
D. Maximum digging depth	16 ft. 5 in. (5.00 m)	15 ft. 9 in. (4.80 m)	20 ft. 8 in. (6.30 m)
E. Digging depth SAE:			
(1) 2-ft. (610 mm) flat bottom		15 ft. 8 in. (4.78 m)	20 ft. 7 in. (6.27 m)
(2) 8-ft. (2440 mm) flat bottom		14 ft. 8 in. (4.47 m)	19 ft. 10 in. (6.05 m)
F. Ground clearance, minimum		13 in. (330 mm)	13 in. (330 mm)
G. Bucket rotation		160 or 180 degrees	160 or 180 degrees
H. Transport height		12 ft. 8 in. (3.86 m)	12 ft. 8 in. (3.86 m)
I. Overall length, transport		23 ft. (7.01 m)	23 ft. (7.01 m)
J. Stabilizer width–transport w/ROPS		7 ft. 8 in. (2.34 m)	7 ft. 8 in. (2.34 m)
K. Stabilizer spread-operating		9 ft. 10 in. (3.00 m)	9 ft. 10 in. (3.00 m)
L. Stabilizer overall width-operating		11 ft. 4 in. (3.45 m)	11 ft. 4 in. (3.45 m)
M. Width over tires	85 in. (2.15 m)	85 in. (2.15 m)	85 in. (2.15 m)

### **JDAdvantEDGE**

It's a no-cost extra that comes with every 410D and 510D. It's a huge package of support programs, parts systems, warranty plans, finance packages and dealer resources dedicated to giving you the best value for your backhoe dollar.

- ▲ ROPS and cab
- Denotes 510D
   \* 510D Loader specifications based on usage of a 1.5 cu. yd. (1.15 m³)
- \*\* 410D Loader specifications based on usage of a 1.3 cu. yd. (1.0 m³) bucket.



